AMENDMENTS TO THE CLAIMS

1-38 (Canceled)

39. (Currently Amended) A method of acquiring information regarding one or more investigational features related to a biological sample on an optical bio-disc, the method comprising:

acquiring a plurality of analog signals from an optical disc assembly using one or more photo detectors;

summing a first subset of the plurality of analog signals to produce a sum signal, wherein the sum signal is indicative of one or more investigational features related to the biological sample;

combining a second subset of the plurality of analog signals to produce a tracking error signal;

obtaining information used to operate an optical disc drive from the tracking error signal; and

configuring a portion of an optical disc drive chip set to perform an analog-to-digital converter function, a demodulation/decode function, and an output interface function, wherein said step of configuring further comprises by-passing said sum signal around said demodulation/decode function

~~processing the sum signal to acquire information regarding the one or more investigational features related to the biological sample~~.

40. (Previously Presented) The method of claim 39 wherein the steps of acquiring and summing produce the sum signal, and the sum signal includes perturbations indicative of ~~an~~ the one or more investigational feature related to the sample.

41. (Previously Presented) The method of claim 39 wherein the step of processing the sum signal comprising digitizing the sum signal and characterizing the one or more investigational feature based on the digitized signal.

42. (Previously Presented) The method of claim 39, further comprising configuring a portion of an optical disc drive chip set to operate as an analog-to-digital converter.

43. (Original) The method of claim 42 wherein the step of configuring comprises programming a digital signal processing chip within said optical disc drive chip set to operate as an analog-to-digital converter.

44. (Original) The method of claim 43 wherein said digital signal processing chip includes a normalization function, an analog-to-digital converter function, a demodulation/decode function, and an output interface function.

45. (Previously Presented) A method comprising:

acquiring a plurality of analog signals from an optical disc assembly using one or more photo detectors;

summing a first subset of the plurality of analog signals to produce a sum signal;

combining a second subset of the plurality of analog signals to produce a tracking error signal;

obtaining information used to operate an optical disc drive from the tracking error signal; and

configuring a portion of an optical disc drive chip set to perform an analog-to-digital converter function, a demodulation/decode function, and an output interface function, wherein said step of configuring further comprises by-passing said sum signal around said demodulation/decode function by creating a path from said analog-to-digital converter function to said output interface function.

46. The method of claim 45 wherein said step of configuring further comprises deactivating said demodulation/decode function.

47. (Previously Presented) A method comprising:

acquiring a plurality of analog signals from an optical disc assembly using one or more photo detectors;

summing a first subset of the plurality of analog signals to produce a sum signal;

combining a second subset of the plurality of analog signals to produce a tracking error signal;

obtaining information used to operate an optical disc drive from the tracking error signal; and

converting the sum signal to a digitized signal;

wherein said step of converting includes configuring a digital signal processing chip that includes a normalization function, an analog-to-digital converter function, a demodulation/decode function, and an output interface function; and said step of configuring comprises creating a path from said analog-to-digital converter function to said output interface function so that said sum signal is unprocessed by said demodulation/decode function.

48. (Original) The method of claim 47 wherein said step of configuring comprises deactivating said demodulation/decode function.

49-133. (Canceled)

134. (Previously Presented) The method of Claim 39, wherein the biological sample comprises at least one of: blood, urine, saliva, amniotic fluid, skin cells, cerebrospinal fluid, serum, synovial fluid, semen, single-stranded and double-stranded DNA, pleural fluid, cells from selected body organs, pericardial fluid, feces, peritoneal fluid, and calculi.

135. (Previously Presented) The method of Claim 39, wherein each of the one or more investigational features comprises at least one of: a bio-bit, a reporter, a blood cell, and a chemical reaction.

136. (Previously Presented) The method of Claim 39, wherein the optical bio-disc includes one or more reporters having an affinity for the investigational features related to the biological sample.

137. (Previously Presented) The method of Claim 136, wherein the one or more reporters includes at least one of: plastic micro-spheres, colloidal gold beads, silica beads, glass beads, latex beads, polystyrene beads, magnetic beads, and fluorescent beads.

138. (Currently Amended) A system of acquiring information regarding one or more investigational features related to a biological sample on an optical bio-disc, the system comprising:

means for acquiring a plurality of analog signals from an optical disc assembly using one or more photo detectors;

means for summing a first subset of the plurality of analog signals to produce a sum signal, wherein the sum signal is indicative of one or more investigational features related to the sample;

means for combining a second subset of the plurality of analog signals to produce a tracking error signal;

means for obtaining information used to operate an optical disc drive from the tracking error signal; and

a demodulation means for performing a demodulation function; and

means for processing the sum signal to acquire information regarding the one or more investigational features related to the sample, wherein said sum signal bypasses said demodulation means via one or more electrical paths from said summing means directly to said processing means.

139. (Currently Amended) A system of acquiring information regarding one or more investigational of a biological sample on an optical bio-disc, the system comprising:

a light source for emitting light so that at least a portion of the light is incident on the optical bio-disc;

one or more photo detectors for sensing portions of the light reflected from the optical bio-disc, wherein the one or more photo detectors output a plurality of analog signals corresponding to the sensed reflected light;

at least one electronic device for summing a first subset of the plurality of analog signals to produce a sum signal, wherein the sum signal is indicative of one or more investigational features of the sample, and for producing a tracking error signal based at least partly on a second subset of the plurality of analog signals;

a demodulator for performing a demodulation function; and

a processor for processing the sum signal to acquire information regarding the one or more investigational features of the sample, wherein said sum signal bypasses said demodulator via one or more electrical paths from said electronic device directly to said processor.

140. (Previously Presented) The system of Claim 139, wherein the biological sample comprises at least one of: blood, urine, saliva, amniotic fluid, skin cells, cerebrospinal fluid, serum, synovial fluid, semen, single-stranded and double-stranded DNA, pleural fluid, cells from selected body organs, pericardial fluid, feces, peritoneal fluid, and calculi.

141. (Previously Presented) The system of Claim 139, wherein the optical bio-disc comprises one or more reporters having an affinity for one or more of the investigational features of the biological sample.

142. (Previously Presented) The system of Claim 140, wherein the one or more reporters includes at least one of: plastic micro-spheres, colloidal gold beads, silica beads, glass beads, latex beads, polystyrene beads, magnetic beads, and fluorescent beads.